

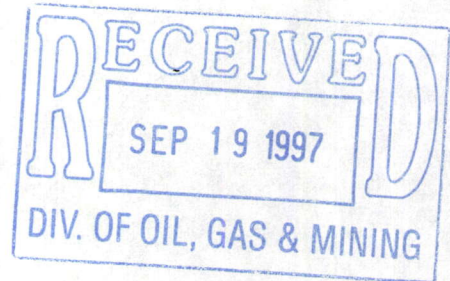
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JUMBO MINING COMPANY

**6305 Fern Spring Cove
Austin, Texas 78730
512-346-4537**

FAX and Mail

September 2, 1997



Mark Novak
Department of Environmental Quality
Division of Water Quality
P.O. Box 144870
288 North 1460 West
Salt Lake City, UT 84114-4870
Fax: 1-801-538-6016

RE: Response to the Division of water Quality's letter dated July 18, 1997

Dear Mr. Novak:

We have reviewed the Division's letter dated July 18, 1997 and wish to add the following comments in response to the letter.

Our consultant, Dr. Evert Lawton, has finished the design plans for our new heap and they should be submitted to DWQ after he receives them back from the draftsman. Dr. Lawton's plans for the heap and ponds will answer all questions raised on the first page of your letter. He will be in touch with you directly on this matter.

Jumbo will collect representative samples of the new ore and waste when mining commences and have them analyzed for potential acid generation and other possible soluble contaminants. A meeting will be arranged with DWQ to discuss analytical procedures and other requirements. In the meanwhile if you have these documented, we would appreciate it if you would send us a copy of these procedures.

Jumbo will proceed with construction of the drain trench to drain the perched aquifer when mining commences. The trench has been approved by the BLM and DOGM (subject to bonding) as well as your office.

Our conceptual closure for the new heap is as follows:

1. Neutralizing the heap, after stopping all additions of lime and cyanide, by slowly lowering the pH of the sprinkling water until the WAD cyanide is to industry standards, e.g. less than 0.20ppm, and the pH from the effluent has stabilized at 8.5 or less for ten consecutive days, and/or until other contaminants are neutralized, diluted, precipitated, etc. to industry standards.

Experience has shown that chlorides and nitrates will remain higher than drinking water standards, due to evaporative concentration of these salts and local conditions.

2. Reclamation of the heap according to our BLM and DOGM permits. We will submit a final closure plan approximately six months prior to closure of the new heap.

With respect to evaluating possible contaminants in the existing heaps for which Jumbo has reclamation responsibilities, our difference is a technical one. You have suggested that we obtain representative samples and test them with a synthetic precipitation leaching procedure. We still agree with the BLM that sampling the runoff after major rainstorms is the ideal and best way to determine what potential contaminants might remain in the heaps.

Effluent sampling is the preferred method recommended by the BLM (Section VIII-32 of their Solid Mineral Reclamation Handbook H-3042-I, (a copy of which is attached hereto for your ready reference) because of the problems of getting representative samples from dumps or heaps which contain a non-homogenous mixture of boulders and fines, including clay minerals. Solid sampling at best can test only a few square feet of a heap, and the very act of sampling introduces a non-representative variable into the question of possible environmental concern. Certainly digging a few sample holes in 40 acres of heaps could never demonstrate possible ground water contamination from the entire heap areas. Generally, only 12 pound (5 kilos) samples are used in solid sampling analysis and leaching of such small samples in the laboratory can not possibly represent a heap which may contain a million tons of rock, including individual boulders weighing as much as several tons each.

The hypalon lined drainage/collection trenches from heaps 1 through 5 (heaps for which Jumbo has reclamation responsibilities) are still intact with only minor holes, and thus have provided representative samples of the heap drainage after rain storms. These ditches transport over 90% of any runoff discharging from the heap after a rainstorm and samples collected from the effluent must accurately demonstrate leachable contaminants from the entire heap. The fact that some of the PVC liners on the upper perimeters of other heaps have been degraded by sunlight, long after they have ceased to be maintained, is not relevant to the question at hand.

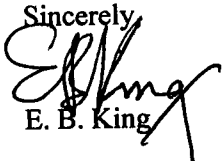
The BLM Handbook states that a six month or longer evaluation period, over a spring runoff or substantial precipitation event, may be necessary to demonstrate that there will be no spiked releases and that the detoxification criteria has been reached. Jumbo and the various government agencies have been sampling the runoff from the heaps at the Drum Mine for over 5 years and to date no excursions of WAD cyanide or metals above industry standards have been detected. Surely, we have shown that the heaps for which Jumbo has reclamation responsibilities were neutralized to acceptable levels when leaching ceased in October, 1990.

In short, we still believe that sampling of these heaps will be a waste of time and money, and if done, will prove nothing. We hope that on further consideration, you will agree.

With respect to your comments on the HELP model, originally suggested to us by your agency, Dr. Lawton will respond separately.

Please let me know if I can be of further assistance.

Sincerely,

A handwritten signature in cursive script, appearing to read "E. B. King", written over the printed name.

E. B. King

cc: Central Utah Health Dept.
Roger Foisey, District Engineer
Wayne Hedberg, DOGM
Ron Teseneer, BLM Filmore Office

VIII-32

H-3042-1 - SOLID MINERAL RECLAMATION
Chapter 8

In evaluating detoxification success both effluent and solid sampling may be employed. Solids sampling can be useful in checking for retained cyanide solutions. However, there is no approved method for collecting samples of solids for cyanide analysis. Significant degradation of cyanide may occur during solid sample collection so the results should be considered as the minimum in-place levels. Effluent sampling at the discharge point(s) are more representative of potential environmental concerns. An extended period of time should be allowed between cessation of neutralization and evaluation of effluent for establishing detoxification success. A six month or longer evaluation period, over a spring runoff or substantial precipitation event, may be necessary to demonstrate there will be no spiked releases and that the detoxification criteria has been reached. Once this has been established surface reclamation can begin.

Once detoxification criteria has been met the containment dike should be breached, and/or the liner material should be punctured and the drain holes filled with sized rock. This provides post-reclamation passage of infiltrating waters thus preventing a build-up of precipitation within the facility which could generate leachate and/or affect stability due to saturation.

3. Shaping and Revegetation

After detoxification is complete, shaping is necessary prior to placement of topsoil, or growth medium, and revegetation. Overly steep slopes will be susceptible to erosion and exposure of the underlying cyanidated material. This could cause direct precipitation recharge and generate undesirable leachate from retained cyanide or metals that were not removed during treatment.

Reclaimed ore heaps should be reduced in slope to at least 2h:1v. At this grade slope length should not exceed 200 feet and benching or terracing may be necessary. Tailings, generally being finer material, are more likely to undergo water and wind erosion. Slopes flatter than 3h:1v are usually required for reasonable erosion resistance and revegetation of tailings (Vick, 1983). The detoxified material may be pushed off the liner to achieve necessary slope reduction. Reshaping of cyanide facilities should include a collection point to allow representative sampling of discharge waters for post-reclamation monitoring.